

**BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION**

**WASHINGTON, D.C. 20554**

In the Matter of:

Promoting More Efficient Use of  
Spectrum Through Dynamic Spectrum  
Use Technologies

ET Docket No. 10-237

**COMMENTS OF TELCORDIA TECHNOLOGIES**

**TELCORDIA TECHNOLOGIES, INC.**  
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February 28, 2011

## **INTRODUCTION**

Telcordia Technologies, Inc. (hereafter Telcordia) herein responds to the Notice of Inquiry<sup>1</sup> (NOI) in this matter. In its NOI, the FCC asked whether an approach allowing unlicensed transmission through a database, similar to that pursued in the TV bands, would be appropriate in other bands. Telcordia is one of the Commission conditionally designated TV Bands Device Database administrators and in designing and developing the TV Band Device Database solution it has gained insight into the some of the matter for which the Commission is making inquiry. Telcordia provides below some examples of areas where a database implementation similar to the solution Telcorida has developed for TV Band Device Database could be extended. In addition, Telcordia's Advanced Technology Solutions has begun research and development on a policy based management engine for the purpose of managing Dynamic Spectrum Access that could provide for future efficiencies in this area.

## **DISCUSSION**

In its NOI, the FCC asked whether an approach allowing unlicensed transmission through permission from a database, similar to that pursued in the TV bands, would be appropriate in other bands. Telcordia agrees that this approach is well suited to bands where licensed transmitters have well defined fixed locations. In addition, licensed services that employ directional antennas for transmission, such as transmitters and receivers in the Fixed Microwave Service spectrum, would provide more spatial locations for access by cognitive radios, since the protected areas for these types of transmitters would be smaller than for those that use omni-directional antennas. Directional transmitters and receivers

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<sup>1</sup> FCC 10-198, FR Doc. 2010-32491 published in the Federal Register 28 December, 2010

are currently protected in the TV bands through use of a keyhole shaped contour. This same approach can be used can be used for Fixed Microwave Service links.

Another spectral band that could possibly benefit from real-time database access is the U-NII Worldwide band, which was recently opened to unlicensed use through Dynamic Frequency Selection (DFS) sensing techniques to avoid interference with radar installations. Since radar installations are generally located at fixed positions, a database approach, or some combination of database and sensing, for interference avoidance in this band would be attractive.

Telcordia Advanced Technology Solutions has begun research and development of a Policy Engine for the purpose of managing Dynamic Spectrum Access. Policies are used to determine whether or not a user is allowed to make use of certain portions of the available spectrum at certain times subject to one or more constraints. Policies, in essence, express obligations that spectrum users must meet.

The use of a policy based approach for spectrum allocation provides several advantages, most notably, dynamic behavior adjustment without having to change code or hardware. The policy specification framework associated with Telcordia's Policy Engine incorporates declarative policies that are machine-readable as well as understandable by humans. These policies have formal semantics, are amenable to rigorous analysis and efficient to use. Reasoning about policies allows determination of aspects such as satisfiability (are the policies consistent?) and redundancy (is a policy subsumed by

existing policies?). In addition, Telcordia's Policy engine can determine optimal appropriate values for the parameters of a spectrum use request in case the request is underspecified or optimal alternate values for these parameters in case the request is denied.

## CONCLUSION

Telcordia believes that a database solution similar to TV Band Device Database in combination with dynamic spectrum policy management can be extended to other spectrums effectively and provide for significant efficiencies in spectrum management into the future.

Respectfully submitted,

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